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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/832,836

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Yang Kyoo Han

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1949

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7590

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 02/07/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/832,836

Applicant(s)

HAN ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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1. The disclosure is objected to because of the following informalities: The numbers corresponding to the Korean patent documents appear to be incorrect on page 3 at lines 16-18 as the USPTO library cannot locate/find the corresponding documents. The examiner would appreciate the applicant providing copies of these to ascertain their relevance.

Appropriate correction is required.

2. Claims 4,5, and 8-9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The polymers of these claims only have one disperse red functional group bound to a single repeating unit of the polymer.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 and 13-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 should clearly indicate that the two disperse red functional groups are bound to the same repeating unit of the monomer.

In claims 6-9, "polymethylmetacrylate" should read - - polymethylmethacrylate - - and "polyvinylcarbazol" should read - - polyvinylcarbazole - - .

The equation in claim 13 does not correspond to an angle as it is unit-less. (it may actually be a distance).

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The meaning of "blend copolymer" is not clear. Is this a true copolymer with a several different repeating units in the polymer chain or a blend of two separate polymers. Please support your position with appropriate citation of the relevant passages of the instant specification. (claims 6-9).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,4,5 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000).

See structures on page 77. The use of these in polarization recording with an argon ion laser is disclosed on pages 77-78.

The examiner is of the opinion that this was received by the public more than one year before the filing date of the instant application.

8. Claim 1 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Burns et al. '760.

See structure in column 5.

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If the applicant amends the claims to require that two disperse red moieties are bound to the same repeating unit, then this rejection would be withdrawn. In view of claims 5 and 6, the examiner interprets the claims broader to embrace any polymer having more than one disperse read bound to the polymer.

9. Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999).

See synthesis described which is identical to that described on page 21 of the instant application and the description of the use of argon ion laser for writing in the article.

10. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Savant et al. '221.

See figure 3, noting that the polarization of the LED or laser diode differs from that on the detector (26) and that the light passes through the medium twice (the second time due to reflection). Notes the 633 nm output disclosed in figures 1 and 2 and the description of the readout process in example XIII, columns 23-26). The azo dyes may be blended or covalently bound to the polymer and include R moieties pendant on the same monomer. (7/34-60). Disperse red is shown in column 10. The use of polymethylmethacrylate (PMMA) is disclosed (8/64). Examples 1 describes writing gratings using an argon ion laser, reading them using the HeNe laser and erasing them using the argon ion laser. The writing and erasure heats the layer due to the absorption of the laser, therefore the heating requirement is met inherently in this process. The overall heating of the layer after coating is also disclosed. .

11. Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998.

See synthesis described in the abstract, which is identical to that described on page 21 of the instant application and the description of the use of argon ion laser for writing in the article.

Note that only the abstract is provided at this time, as the examiner does not yet have a copy of the article, but will be provided and made of record, when it is received. **The applicant is reminded of their duty of disclosure of relevant articles, publications and public presentations, including those in which they are listed as authors.**

12. Claims 1-2,6 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999), in view of Savant et al. '221.

In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the process of either Han et al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999) by using other apparatus for exposure known in the art to be useful with disperse red based photoisomerizable media, such as that disclosed by Savant et al. '221 with a reasonable expectation of being able to record, read and erase information based upon the disclosure of that functionality in Savant et al. '221 and that added possibility of recording holographic information and/or it would have been obvious to one skilled in the art to modify the process of either Han et

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al., Mol. Cryst. Liq. Cryst. Vol. 327, pp. 271-274 (1999) or the presentation at the corresponding Korea-Japan Joint Forum 1998, Sapporo, Japan, June/July 1998 or Han et al., Polymer Preprints, Vol. 40(2) pp. 1234 (1999) by using other binders such as PMMA as taught by Savant et al. '221 to adjust the Tg of the composition.

13. Claims 1,4,5 and 8-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000), in view of Savant et al. '221.

In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the process of Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000) by using other apparatus for exposure known in the art to be useful with disperse red based photoisomerizable media, such as that disclosed by Savant et al. '221 with a reasonable expectation of being able to record, read and erase information based upon the disclosure of that functionality in Savant et al. '221 and that added possibility of recording holographic information and/or it would have been obvious to one skilled in the art to modify the process of Han et al., Mol. Cryst. Liq. Cryst. Vol. 349, pp. 75-78 (2000) by using copolymeric binders such as PMMA as taught by Savant et al. '221 to adjust the Tg of the composition.

14. Claims 3 and 7 are allowable over the prior art of record as there is no motivation to form the recited polymer.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brehmer et al., Macromol. Symp., Vol. 102, pp. 391-398 (1996), JP 08-012709, Chollet et al., Thin Solid Films, Vol. 242, pp. 132-138 (1994), Natansohn et al. '381, Park et al., Kongop

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Hwahak, Vol. 11(2) pp. 151-156 and Bauer et al., Appl. Phys. Lett., Vol. 63(15) pp. 2018-2020 (1993) teach disperse red containing polymers.

16 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 703-308-4397.

The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703,308-0661.



Martin J Angebrannndt  
Primary Examiner  
Art Unit 1756

February 3, 2003